

What is claimed is:

1. A conveying system comprising
  - (a) a conveyor for advancing items thereon; and
  - (b) an image-capturing apparatus for detecting individual items on the conveyor and for generating image signals representing an image of the items; the apparatus including
    - (1) an illuminating unit formed of a matrix composed of a plurality of light-emitting diodes;
    - (2) a picture-capturing unit for receiving light rays emitted by said matrix and modified by an item situated in a path of the light rays and for generating the image signals; and
    - (3) a control unit connected to said matrix and said picture-capturing unit for a pulsed illumination of said matrix.
2. The system as defined in claim 1, wherein said control unit includes means for synchronizing the pulsed illumination of said matrix with actuation of said picture-capturing unit for individually capturing images of the items.
3. The system as defined in claim 1, wherein said light-emitting diodes are monochromatic; further comprising a filter positioned in front of said picture-capturing unit in the

path of said light rays; said filter transmitting light solely of a wavelength range of said light-emitting diodes.

4. The system as defined in claim 1, wherein said matrix is positioned above said conveyor and said picture-capturing unit is disposed below said conveyor, whereby said image-capturing apparatus operates with transmitted light.

5. The system as defined in claim 1, wherein said matrix is positioned below said conveyor and said picture-capturing unit is disposed above said conveyor, whereby said image-capturing apparatus operates with transmitted light; further wherein said conveyor is a light-diffusing belt.

6. The system as defined in claim 1, wherein said matrix and said picture-capturing unit are disposed above said conveyor, whereby said image-capturing apparatus operates with reflected light.

7. The system as defined in claim 6, further comprising an optical element at an output of said matrix for parallelizing light rays emitted by said matrix.

8. The system as defined in claim 6, further comprising a reflector positioned between said matrix and said conveyor

for deflecting the light rays, emitted by said matrix, toward said conveyor.

9. The system as defined in claim 6, wherein said picture-capturing unit is disposed centrally in said matrix.

10. A conveying system comprising

(a) a conveyor for advancing items thereon; and

(b) an image-capturing apparatus for detecting individual items on the conveyor and for generating image signals representing an image of the items; the apparatus including

(1) an illuminating unit including

(i) a first matrix composed of a plurality of light-emitting diodes and disposed above said conveyor;

(ii) a second matrix composed of a plurality of light-emitting diodes and disposed below said conveyor;

(2) a picture-capturing unit disposed above said conveyor for receiving light rays emitted by said first and second matrices in reflected and transmitted light, respectively, and modified by an item situated in a path of the light rays and for generating the image signals; and

(3) a control unit connected to said first and second matrices and said picture-capturing unit for a pulsed illumination of said first and second matrices and for

synchronizing the pulsed illumination of said first and second matrices with actuation of said picture-capturing unit for individually capturing images of the items.

090333Z "061901